

## Tray

### Description

5 The present invention relates to a tray that can be held with one hand, which can securely retain items placed thereon and which can be stacked with other such trays.

Many different types of trays are known that are used to transport a plurality of items, for example drinks to and from tables in bars or restaurants. However, all  
10 such known trays suffer a number of disadvantages. One is that they are flat and must be held either by their edges or underneath, which means that carrying drinks can be precarious and require delicate balance, especially in crowded environments, such as the bars and restaurants that they are most commonly used. Also, holding the tray by the edges requires both hands to keep it as steady as possible, so does  
15 not leave the user with a free hand for any other purposes. Another disadvantage is the lateral dimensions of such trays. Usually they are wide, which means that they are vulnerable to knocks when being carried through crowds, and because they are flat, the drinks supported thereon have no means of lateral stabilisation to prevent them falling over if they are subjected to a knock.

20 Therefore, there exists a need to provide a tray to carry a plurality of drinks easily, with one hand, and with which the drinks being transported are less vulnerable to spillage or falling over, to substantially alleviate or overcome the problems mentioned above.

25 According to the present invention therefore, there is provided a tray having a handle portion and a peripheral base surrounding the handle portion to support items placed on the tray, the handle portion protruding upwardly from the peripheral base.

30 In a preferred embodiment, the base has a wall extending substantially vertically upwards from the perimeter of the base to prevent items from falling off the base.

Preferably, the handle portion comprises a post extending vertically upwards from the centre of the base and a lifting handle located at the top of said post.

Advantageously, the top of the post is vertically higher than the top of the wall, and the post preferably tapers inwardly towards its top. Conveniently, the post is

5 hollow.

In a preferred embodiment, the base portion has an aperture in the centre thereof of the same dimensions as the area of the base of the post such that the hollow interior of the post is accessible from the underside of the base through said

10 aperture.

Preferably, the top of the post has an aperture therein. In a preferred embodiment, the lifting handle comprises a circular hoop portion, a shaft portion connected to the hoop portion, and a snap-fit connection on the other end of the shaft distal

15 from the hoop, the snap-fit connection conveniently comprising a plurality of resiliently deformable arms extending parallel to each other in the axial direction of the shaft, an end of each arm distal from the shaft having a projection extending laterally outwards from the arm.

20 The hoop portion, the shaft and the snap-fit connection means are preferably all integrally formed. Conveniently, the base portion is circular, and the post is preferably also circular in cross-section.

A preferred embodiment includes a rotatable collar between the post and the lifting

25 handle. Conveniently, the collar has a central aperture therethrough to receive the shaft of the lifting handle to retain the collar in position between the post and the lifting handle. Preferably, the collar has markings on the outer surface thereof and is preferably circular.

30 In a preferred embodiment, the base portion has a plurality of feet on the underside thereof, which are conveniently formed integrally with the base.

The base, the post and the wall are preferably all formed as one unitary component. Alternatively, the tray could exclude a collar, and entire tray could be formed as one single unitary component. In either embodiment, the unitary component can advantageously be moulded, and is conveniently made from plastic, glass, a wood derivative or resin. Alternatively, the tray can be made from metal, wood.

A preferred embodiment of the present invention will now be described, by way of example only, with reference to the following drawings, in which:

- 10 Figure 1 shows a side view of a carrying tray according to the invention;
- Figure 2 is a plan view from above of the tray shown in Figure 1;
- Figure 3 is a cross sectional side view of the tray along the line X - X;
- Figure 4 is a cross sectional side view of the tray along the line Y - Y;
- Figure 5 is an exploded cross sectional side view of the tray along the line Y - Y;
- 15 and
- Figure 6 is a cross sectional side view of two of the trays of the invention stacked one on top of the other.

Referring now to the drawings, there is shown a carrying tray 1 of the present invention comprising a base portion 10, a central post portion 20 and a lifting handle 30. The base portion 10 is circular, and has a floor 11 and a wall 12 extending upwardly from the perimeter thereof. The post 20 is attached to the centre of the floor 11 of the base 10, and extends upwardly therefrom above the level of the top of the perimeter wall 12. The post 20 is hollow to define a central cavity 21, and is inwardly tapered towards its top 22. The base 10 has a circular hole 13 in its middle beneath the circular base of the post 20, so that the central cavity 21 in the post 20 is accessible from underneath the base portion 10 through the circular hole 13. The top 22 of the post 20 has a central circular hole 23 therein extending through to communicate with the cavity 21, the hole 23 having a peripheral lip 23a extending from the edge thereof, parallel to the axis of the hole 23, into the central cavity 21 (see Figure 5).

The lifting handle 30 comprises a hoop portion 31 connected to one end of a circular shaft 32, the other end of the shaft 32 having a snap-fit connection 33 formed thereon. Said snap-fit connection comprises two parallel resiliently deflectable arms 34 that extend from said other end of the shaft 32 in the axial  
5 direction of the shaft 32. Each arm 34 has a step 34a that projects laterally outwards from near the end of the arm 34 distal from the shaft 32, and then tapers back inwardly further towards said distal end.

The handle 30 can be snap-fitted to the hollow post 20 as shown in Figures 3 and 4  
10 by pushing the arms 34 through the hole 23 in the top of the post 20, such that the tapered ends of the arms 34 contact the inside edge of the hole 23 and cause the arms 34 to be deflected inwardly until the steps 34a pass through the hole, and spring back to their normal undeflected position in which the steps 34a abut the lip  
23a of the hole 23 and so hold the lifting handle 30 connected to the post 20.

15 A circular collar 40 is positionable between the handle hoop portion 31 and the top 22 of the hollow post 20, and has a central hole 41 therethrough dimensioned such that the shaft 32 of the handle portion 30 can pass through said hole 41 to retain the collar 40 in position. The collar 40 is freely rotatable about the shaft 32 relative  
20 to the handle 30 and to the post 20.

The underside of the floor 11 of the base 10 has feet 14 projecting therefrom, which are integrally moulded with the base 10.

25 In use, items such as drinks containers are placed on the floor 11 of the base portion 10 so that the perimeter wall 12 can contact the sides of the containers and laterally restrain them. The tray 1 can then be lifted with one hand by the user putting at least one finger through the hoop portion 31 of the lifting handle 30, and thereby use the tray to transport the items thereon. The design of the tray 1 having  
30 the lifting handle 30 at the top of the central post 20 means that the centre of mass of the tray 1 and items combination, is lower than the point which the tray is lifted from. This, combined with a single point of lifting, results in the items being more stable and, if they are drinks, much less vulnerable to spillage if the tray 1 is

knocked in transit. This is due to the pendulous nature of the tray 1, as any lateral knock to the tray will swing it about the lifting point of the handle 30, rather than jolt it violently sideways. Furthermore, the side walls 12 help to stabilise the items and prevent them from toppling over. The overall width of the tray 1 is also a lot less than that of standard trays found in, for example, pubs and/or restaurants, so is less likely to get knocked in the first place when it is being used to transport items through crowds. There is also the added advantage that the tray is designed to be lifted using only one hand, which leaves the other hand free. Normal trays require the use of both hands for optimum stability, which can mean that negotiating doors for example, can be tricky.

The tray 1 is dimensioned such that one can be stacked on top of another, as shown in Figure 6. One tray 1 is placed on top of another 1' so that the lifting handle 30' and hollow post 20' of the lower tray 1' is received inside the hollow post 20 of the upper tray 1, and the floor 11 of the upper tray 1 rests on the top of the perimeter wall 12' of the lower tray. It is important that the hollow posts 20/20' are tapered inwardly towards their top ends as shown in the drawings for this stacking function to work properly. This means that many such trays 1,1' can be stored with a more efficient use of space.

The collar 40 can be formed with or have markings thereon to enable it to be used as part of a game, such as a drinking game, to be played by the drinks purchasers once their drinks have been delivered to them. For example, the collar 40 could have a pointer thereon so that if it is spun around, when it comes to a stop, it would align with one of various markings that could be provided on either the post 20, or on the floor 11 or wall 12 of the base 10. These markings on the post 20 or base 10 could either be formed or printed directly thereon, or could be printed on separate covers that could fit over the post 20 or base 10, making them easily replaceable. Alternatively, the collar 40 can be used as advertising space. Since the collar 40 can easily be removed by removal of the lifting handle 30 from the top 22 of the post 20, the type of game or advertising on the collar 40 can easily be changed.

The feet 14 on the base 10 are intended to elevate the tray 1 slightly above the level of the surface on which it is placed. This is particularly useful for pub or bar environments in which it can be used, as table/bar surfaces can be wet with spilt drinks, so the feet 14 prevent the whole of the outer side of the floor 11 of the base 10 from getting wet and sticking to the surface.

The tray 1 can be produced using a moulded plastic material, and one particular advantage is that the base 10 with its peripheral wall 12 and feet 14, and the post 20, can all be moulded as one unitary body. Furthermore, the lifting handle 30 comprising the hoop 31, the shaft 32 and snap-fit connection 33 can also be moulded as one unitary body. The means that the whole tray 1 comprises only three separate components, namely the base 10/post 20 combination, the lifting handle 30 and the rotatable collar 40 (see Figure 5). This also means that the tray can be manufactured in high volumes at a low cost.

The tray 1 can also be made from metal, e.g. aluminium, resin, glass wood or wood derivative. Each of these alternative materials still allows the base 10, wall 12 and post 20 to be produced as one unitary body. A metal version could be produced as a sheet and press-stamped over a die to the required shape, wood or certain wood derivatives could be milled and/or drilled into shape and resin, glass or certain other wood derivatives could be moulded into shape.

A further unillustrated embodiment, intended to be covered within the scope of the claims hereafter could comprise the base 10, post 20 and lifting handle 30, but without the collar 40, wherein the entire tray 1 is formed as one single unitary component. Obviously, with such a tray 1, the lifting handle 30 would not be able to rotate relative to the base 10 as with the embodiments described previously, but the tray 1 would be stackable as described above, and would be even cheaper and easier to manufacture in large numbers. Such a unitary tray could be made from any of the materials mentioned above.